



Generell informasjon

Brønnbane navn	7/12-4
Type	EXPLORATION
Formål	APPRAISAL
Status	SUSPENDED
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Felt	ULA
Funn	7/12-2 Ula
Brønn navn	7/12-4
Seismisk lokalisering	
Utvinningstillatelse	019
Boreoperatør	BP Norway Limited U.A.
Boretillatelse	183-L
Boreinnretning	NORSKALD
Boredager	93
Borestart	11.09.1977
Boreslutt	12.12.1977
Frigitt dato	12.12.1979
Publiseringsdato	06.01.2014
Opprinnelig formål	APPRAISAL
Gjenåpnet	NO
Innhold	OIL
Funnbrønnbane	NO
1. nivå med hydrokarboner, alder	LATE JURASSIC
1. nivå med hydrokarboner, formasjon.	ULA FM
Avstand, boredekk - midlere havflate [m]	25.0
Vanndybde ved midlere havflate [m]	71.0
Totalt målt dybde (MD) [m RKB]	3623.0
Totalt vertikalt dybde (TVD) [m RKB]	3623.0
Maks inklinasjon [°]	1.9
Temperatur ved bunn av brønnbanen [°C]	144
Eldste penetrerte alder	EARLY JURASSIC
Eldste penetrerte formasjon	BRYNE FM
Geodetisk datum	ED50
NS grader	57° 5' 36.66" N



ØV grader	2° 51' 36.96" E
NS UTM [m]	6327946.46
ØV UTM [m]	491532.39
UTM sone	31
NPDID for brønnbanen	298

Brønnhistorie

General

Well 7/12-4 was drilled as an appraisal well on the Ula Field in the North Sea. The main objective was to evaluate the extent and hydrocarbon potential of the Late Jurassic sands in the south eastern flank of the structure.

Operations and results

Appraisal well 7/12-4 was spudded with the semi-submersible installation Nordskald on 11 September 1977 and drilled to TD at 3623 m in Early Jurassic sediments of the Bryne Formation. Operations proceeded without significant problem. The well was drilled with fresh water/gel down to 498 m and with lime/Drispac mud from 498 m to TD.

The target reservoir Ula Formation was encountered at 3445 m, while the underlying Bryne Formation came in at 3529 m. Net sand in the reservoir was 73 m with porosity from 10 to 23%, permeability from a few millidarcy to 1750 millidarcy, and water saturation from 5 to over 60%. The reservoir was oil-bearing with a possible OWC at 3551 m in the Bryne Formation based on disappearance of oil shows; however, drill stem tests showed that the producible contact between oil and water was between 3530 and 3536 m.

Seven cores were cut from near top Ula Formation at 3447.5 m to 3556.7 m in the Bryne Formation. The recovery was 100% in core one to six and 96% in core seven. RFT fluid samples were taken at 3458 m (oil, emulsion and water), 3467 m (emulsion) and at 3528 m (water)

The well was suspended on 12 December 1977 for possible use as a producer at a later stage. It is classified as an oil appraisal well.

Testing

Production tests were carried out on three reservoir intervals to establish the producible oil-water contact and to obtain reservoir properties of the Middle and Late Jurassic sands.

DST 1 tested the intervals 3536 to 3540 m and 3550 to 3552 m. This test failed for mechanical reasons in the first attempt. The second attempt, DST 1B, produced 10 Sm³ water/day with no indication of hydrocarbons. This was the only test where the temperature gauge functioned correctly. The measured temperature was 141.1 deg C

DST 2 tested the interval 3527 to 3530 m. This test produced 6 Sm³ oil/day from low-permeable sands at the base of the reservoir. The oil density was 0.828 g/cm³.

DST 3 tested the main reservoir from the intervals 3453 to 3460 m and 3463.5 to 3471.5 m. This test produced in the final flow 1110 Sm³ oil, 73624 Sm³ gas /day through a 32/64" choke. The separator GOR was 66 Sm³/Sm³ while the total GOR was 96 Sm³/Sm³. The oil density was 0.830 g/cm³ and the gas gravity was 0.754 (air = 1).



Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
180.00	3621.00

Borekaks tilgjengelig for prøvetaking?	YES
--	-----

Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
1	3447.5	3465.8	[m]
2	3465.8	3474.5	[m]
3	3474.5	3491.5	[m]
4	3492.5	3510.7	[m]
5	3510.7	3519.7	[m]
6	3519.7	3538.4	[m]
7	3538.4	3556.7	[m]

Total kjerneprøve lengde [m]	108.2
Kjerner tilgjengelig for prøvetaking?	YES

Kjernebilder



3447-3452m



3452-3457m



3457-3462m



3462-3465m



3465-3470m



3470-3474m



3474-3479m



3479-3484m



3484-3489m



3489-3491m



3492-3495m



3495-3497m



3500-3503m



3503-3506m



3497-3501m



3506-3510m



3510-3515m



3515-3519m



3522-3525m



3525-3527m



3527-3530m



3519-3531m



3531-3536m



3536-3538m



3538-3543m



3543-3548m



3548-3553m



3553-3556m

Palynologiske preparater i Sjøkeldirektoratet

Prøve dybde	Dybde enhet	Prøve type	Laboratorie
3448.2	[m]	C	HYDRO
3449.8	[m]	C	HYDRO
3450.0	[m]	C	HYDRO
3456.5	[m]	C	HYDRO
3460.0	[m]	C	HYDRO
3465.0	[m]	C	HYDRO
3470.7	[m]	C	HYDRO
3471.6	[m]	C	HYDRO
3472.3	[m]	C	HYDRO



3473.8	[m]	C	HYDRO
3474.8	[m]	C	HYDRO
3479.7	[m]	C	HYDRO
3484.5	[m]	C	HYDRO
3485.3	[m]	C	HYDRO
3486.0	[m]	C	HYDRO
3487.8	[m]	C	HYDRO
3490.6	[m]	C	HYDRO
3495.4	[m]	C	HYDRO
3500.5	[m]	C	HYDRO
3505.2	[m]	C	HYDRO
3509.7	[m]	C	HYDRO
3514.5	[m]	C	HYDRO
3519.0	[m]	C	HYDRO
3523.0	[m]	C	HYDRO
3525.1	[m]	C	HYDRO
3525.5	[m]	C	HYDRO
3527.0	[m]	C	HYDRO
3528.0	[m]	C	HYDRO
3530.2	[m]	C	HYDRO
3534.1	[m]	C	HYDRO
3537.0	[m]	C	HYDRO

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
95	NORDLAND GP
1587	HORDALAND GP
2583	ROGALAND GP
2583	BALDER FM
2618	SELE FM
2672	LISTA FM
2704	MAUREEN FM
2737	SHETLAND GP
2737	EKOFISK FM
2899	TOR FM
3101	HOD FM
3145	CROMER KNOLL GP
3145	RØDBY FM



3350	TYNE GP
3350	MANDAL FM
3365	FARSUND FM
3445	VESTLAND GP
3445	ULA FM
3529	BRYNE FM

Geokjemisk informasjon

Dokument navn	Dokument format	Dokument størrelse [KB]
298_1	pdf	0.56
298_2	pdf	0.48
298_3	pdf	0.54
298_4	pdf	1.43
298_5	pdf	0.64
298_6	pdf	0.63
298_7	pdf	0.27

Dokumenter - eldre Sokkeldirektoratets WDSS rapporter og andre relaterte dokumenter

Dokument navn	Dokument format	Dokument størrelse [KB]
298_01 WDSS General Information	pdf	0.26

Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

Dokument navn	Dokument format	Dokument størrelse [KB]
298_7_12_4 Completion log	pdf	2.23
298_7_12_4 Drilling Completion report	pdf	8.41
298_7_12_4 Geological Completion Report	pdf	7.88

Borestrengtester (DST)

Test nummer	Fra dybde MD [m]	Til dybde MD [m]	Reduksjonsven til størrelse [mm]
1.0	3536	3552	0.0
2.0	3527	3530	0.0





3.0	3453	3472	12.4
-----	------	------	------

Test nummer	Endelig avstengningstrykk [MPa]	Endelig strømningstrykk [MPa]	Bunnhullstrykk [MPa]	Borehullstemperatur [°C]
1.0				141
2.0				
3.0				

Test nummer	Olje produksjon [Sm3/dag]	Gass produksjon [Sm3/dag]	Oljetetthet [g/cm3]	Gasstygde rel. luft	GOR [m3/m3]
1.0					
2.0	6		0.830		
3.0	1110	73624	0.830	1.000	96

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [m]
CBL VDL	85	3589
CDM AP	3367	3621
DLL MSFL	3366	3619
FDC CNL	3366	3620
GR	95	480
ISF SONIC	480	3618
SRS	80	3618

Foringsrør og formasjonsstyrketester

Type utforing	Utforing diam. [tommer]	Utforing dybde [m]	Brønnbane diam. [tommer]	Brønnbane dyp [m]	LOT/FIT slam eqv. [g/cm3]	Type formasjonstest
CONDUCTOR	30	169.0	36	174.0	0.00	LOT
SURF.COND.	20	492.0	26	498.0	0.00	LOT
INTERM.	13 3/8	1678.0	17 1/2	1694.0	0.00	LOT
INTERM.	9 5/8	3369.0	12 1/4	3373.0	0.00	LOT
LINER	7	3620.0	8 1/2	3621.0	0.00	LOT

Boreslam



Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
0	1.43			waterbased	
498	1.06			waterbased	
597	1.43			waterbased	
1125	1.40			waterbased	
1388	1.44			waterbased	
1694	1.45			waterbased	
2920	1.44			waterbased	
3339	1.44			waterbased	

Trykkplott

Porertrykksdataene kommer fra logging i brønnen hvis ingen annen kilde er oppgitt. I noen brønner der trykk ikke er logget, er det brukt informasjon fra formasjonstester eller brønnspark. Trykkdataene er rapportert inn til Oljedirektoratet og videre prosessert og kvalitetssikret av IHS Markit.

Dokument navn	Dokument format	Dokument størrelse [KB]
298 Formation pressure (Formasjonstrykk)	pdf	0.22

